

AYK REGION

SALMON BOF RPT #13

MID-YUKON FALL CHUM SALMON TAGGING FOR 1977

PRELIMINARY REPORT TO THE BOARD OF FISHERIES

DECEMBER 1977

PRELIMINARY REPORT TO THE BOARD OF FISHERIES
ON THE MID-YUKON FALL CHUM SALMON TAGGING FOR 1977

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Fall chum salmon tagging was continued in 1977 for the second year in the mid-Yukon area. The objectives of this study are to document migration timing and spatial distribution of the various Yukon River stocks through the commercial and subsistence fisheries.

The information presented below represents a preliminary data summary. Final summary and comparisons of data will follow computer analysis.

Petersen disc tags (3/4") were used in all tagging. A \$2.00 reward was offered to the public for each returned tag. Salmon were captured for tagging by three leased fishwheels; two in the Galena area and one in the Ruby area (Figure 1). Fishwheel No. 1 was fished along the north bank of the Yukon (River mile 555) upstream from Galena. Fishwheel No. 2 was fished along the south bank of the Yukon (River mile 540) upstream from Galena. The Ruby wheel, fishwheel #3, was fished along the south bank (River mile 601) approximately 20 miles upstream from Ruby. Tag recoveries were obtained from commercial and subsistence fishermen and by Department crews who visited spawning areas on the ground to recover tags from spawners and carcasses. The date, location, and method of recovery was requested of those who returned tags. In many instances such information was incomplete, in error or not supplied. Suspect or incomplete data was omitted from some phases of analysis.

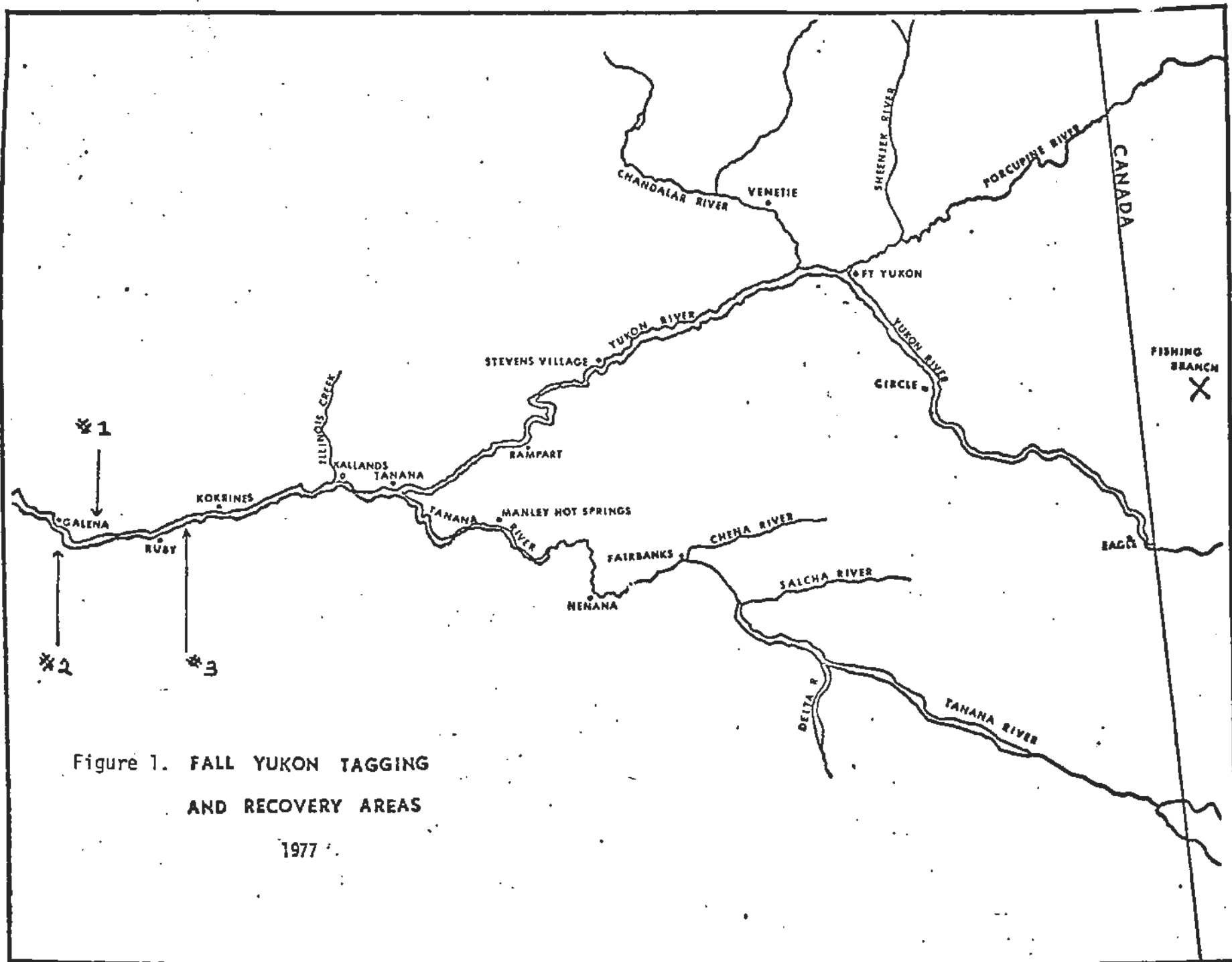


Figure 1. FALL YUKON TAGGING
AND RECOVERY AREAS

1977

Tagging was initiated at the north bank Galena wheel August 5 and at the south bank Galena wheel August 6. The first tagging at the Ruby wheel occurred on August 10. Tagging was terminated at the Galena north bank wheel Sept. 17, Galena south bank wheel Sept. 21, and at the Ruby wheel on Sept 30.

A total of 5,358 chum salmon was tagged, in 1977 compared to 1217 in 1976. A breakdown of chum tagged by location indicates that 1,841 (34%) were tagged at Galena No. 1 wheel, 1,208 (23%) were tagged at Galena No. 2, and 2,309 (43%) were tagged at the Ruby site. A total (Ruby wheel plus Galena No. 2) of 3,517 (66%) chums were tagged along the south bank of the Yukon.

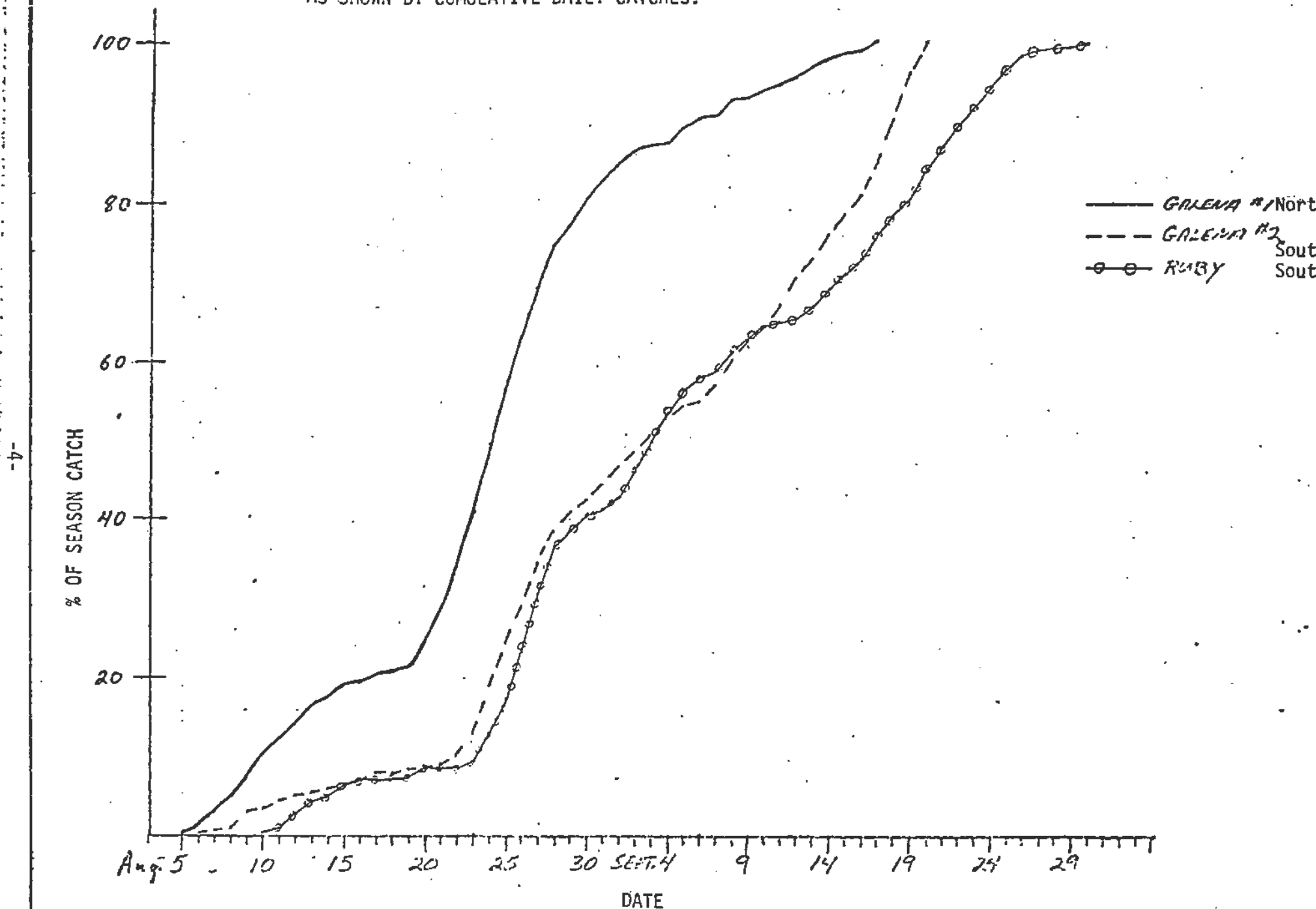
The peak daily catch for the Galena north bank wheel was 146 on August 24. The Galena south bank peak catch was 74 on August 24 and the Ruby south bank peak catch was 165 on Aug 27. The difference in timing as shown by cumulative daily catches at fishwheel sites during the 1977 run gives strong support to the theorys that salmon migrating to the various spawning areas pass through the fisheries at different times (Figure 2).

The sex composition of 5,233 fall chums identified as to sex at time of tagging was 3,211, or 61% male and 2,022 or 41% female.

A total of 227 coho was tagged. Two hundred and seven or 91% of these were tagged at the Ruby fishwheel site. Sixty-six percent of the coho captured for tagging were male.

To date 1,831 or 34% of the chum salmon tagged have been recovered in the subsistence and commercial fisheries. In 1976, with an apparently smaller run and higher harvest rate, 500 or 41% of the chums tagged were recovered by the subsistence and commercial fishery.

FIGURE 2. COMPARATIVE RUN TIMING OF FALL CHUMS THROUGH GALENA AND RUBY FISHWHEELS AS SHOWN BY CUMULATIVE DAILY CATCHES.



Recoveries by major harvest area are presented in Figure 3. As in 1976, the major fisheries located in the vicinity of the villages of Tanana, Rampart, Manley, and Nenana accounted for a substantial portion of the tag recoveries. Chums tagged at the Ruby wheel in 1977 were essentially above the Galena and Ruby fisheries. In 1977 Galena and Ruby accounted for a smaller portion of total tag recoveries than 1976.

Figure 4 shows the relative percentage of chum salmon caught in river areas by bank of tagging. In the main Yukon River below the Tanana River no difference was seen in observed and expected numbers of tag returns by bank of origin when weighed by numbers of fish tagged. Eighty-seven percent of the recoveries made in the main Yukon, Tanana to the Porcupine River, were tagged on the north bank, while 94% of the recoveries from the main Yukon, from the Porcupine River, upstream, were tagged on the north bank. The Porcupine River drainage recoveries ran 92% north bank tags. Chandalar River recoveries (only four) were 100% north bank tagged chums. Of the 71 recoveries made on the Toklat spawning grounds, 70 or 99% were south bank tagged chums (Figure 5), while 302% of the 333 recoveries (91%) made in the Tanana River and its tributaries, were south bank tagged fish. The 1977 tagging strongly supports preliminary conclusions made on the basis of 1976 tagging. Yukon fall chum stocks, at least as far downstream as Galena, are separated by bank with Tanana stocks strongly south bank oriented and upper main Yukon stocks mainly north bank oriented (Table 1).

Numbers of recoveries by gear and by fishery activity are presented in Table 2). Fishwheels accounted for 64% of upriver tagged chum recovered with gillnets running 24%. The commercial fishery accounted for 29% of tag recoveries known as to activity, the subsistence fishery 53%, and stream surveys of spawning grounds 5%. In 1976 the commercial fishery accounted for 66% of tag recoveries and the subsistence fishery 28%.

Percent of Total Tags Recovered

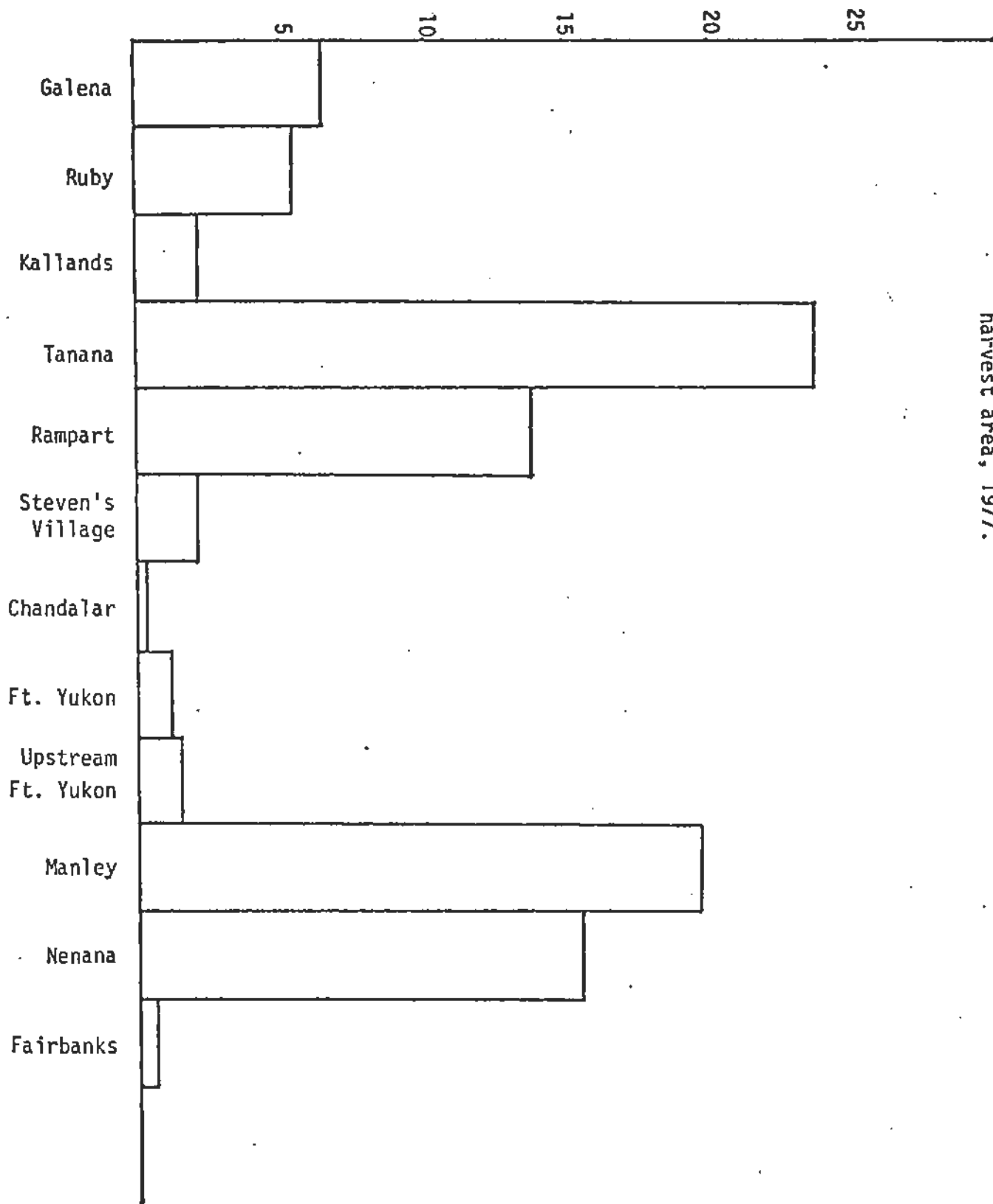


Figure 3. Percent of total Yukon chum salmon tag recoveries by major harvest area, 1977.

Figure 4. Percent of tag returns from 1977 fall chum by bank of tagging and major river area 1/ 2/ 3/ 4/

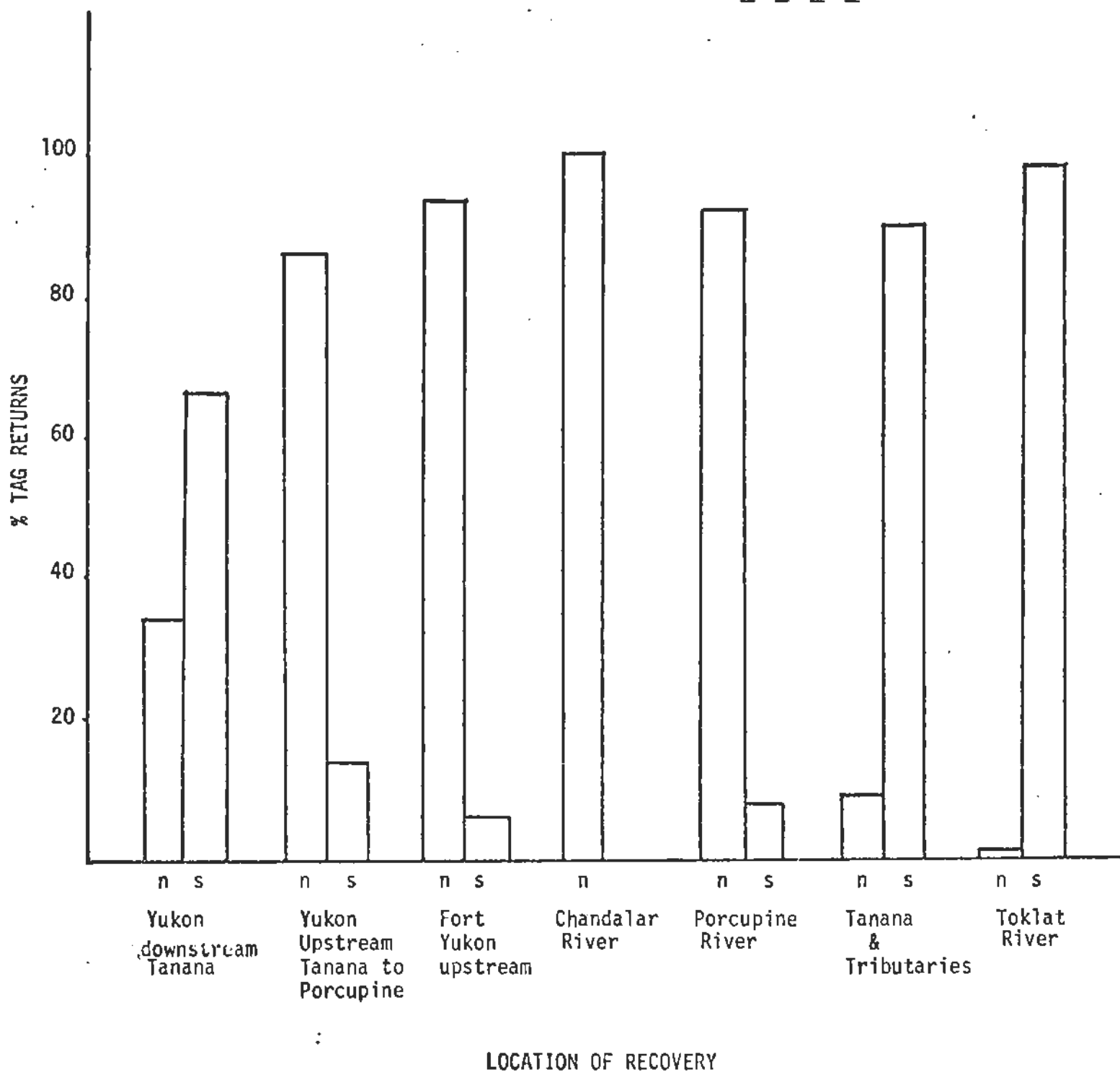
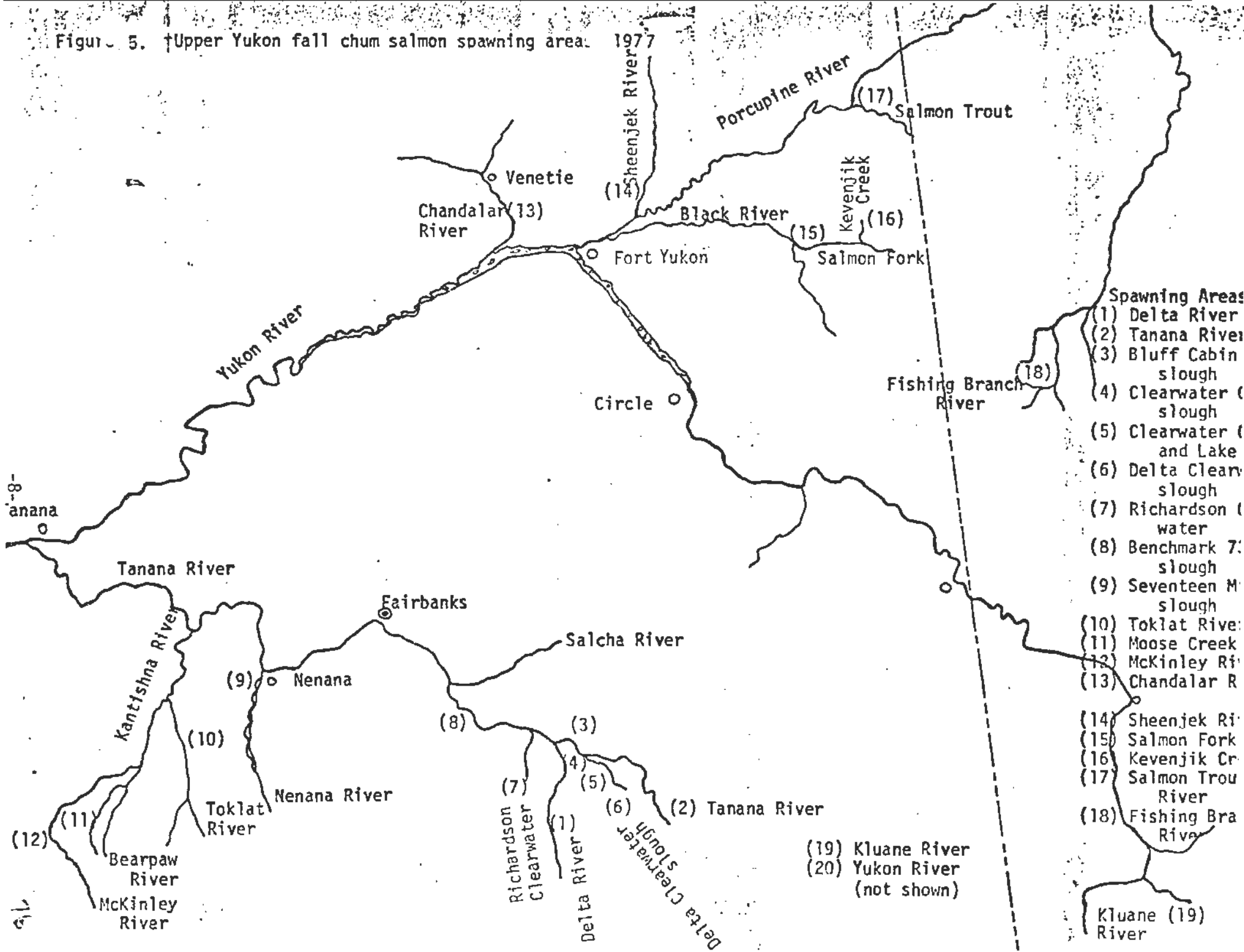


Figure 5. Upper Yukon fall chum salmon spawning area. 1977



Fewer recoveries in the commercial fishery in 1977 is probably due to the earlier season closures than in 1976. Fall chum quotas were filled relatively sooner in 1977, and thus, there was less fishing time allowed during the period when recoveries were being made.

Some very good information has been developed on migration rates as indicated by salmon tagged at Galena study sites and recovered at the Ruby study site. For 23 recoveries the average time at large was 3.2 days with an indicated migration rate 21.6 miles/day.

Table 1. Numbers of tag recoveries by major river area based on tagging origin.

River Area	N. Bank	S. Bank	Total	N. %	S.
Yukon downstream Tanana River	183	354	537	34.1	65.9
Main Yukon upstream Tanana River to Fort Yukon	413	62	475	86.9	13.1
Ft. Yukon upstream	45	3	48	93.8	6.3
Tanana & Tributaries	31	302	333	93.1	90.7
Toklat	1	70	71	1.4	98.6
Chandalar	4	0	4	100	0
Porcupine	11	1	12	91.7	8.3
Total	688	792	1,480	46.5	53.5

1/ Including Delta River.

Table 2. Chum salmon tag recoveries by gear and fishery activity

<u>Recovery by Gear</u>					
	Fishwheel	Gillnet	Stream Survey	Unknown	Total
No. Recov	1202	448	99	137	1886
%	63.73	23.76	5.25	7.26	100
<u>Fishery Activity</u>					
	Commercial	Subsistence	Stream Survey	Unknown	Total
No. Recov	547	998	99	242	1886
%	29.0	52.9	5.2	12.8	100

1/ Not all tag returns available for analysis at this publication time has been developed.